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extended attributes

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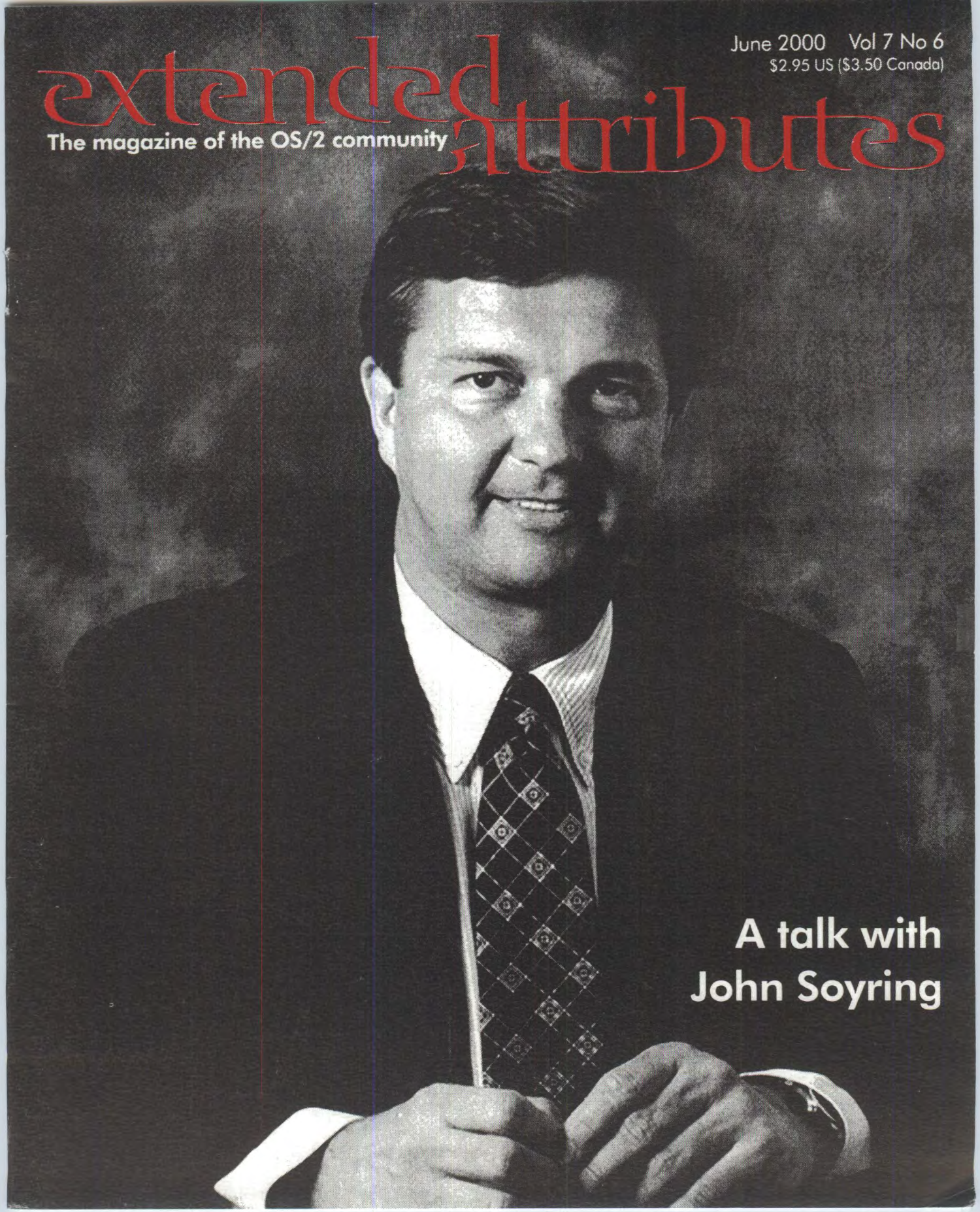

A talk with John Soyring

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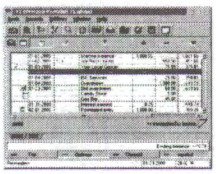
In this issue

keyphrases

Features

Departments



Software

Society news

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Using USB printers in OS/2

by Professor James T. Stanley

I read in extended attributes (May, 2000) that IBM issued USB printer drivers. Since my Epson Sylus 860 has an USB port as well as a parallel port, I thought I would give it a try.

I purchased a cheap PCI-USB card. Then I downloaded the drivers from `ftp://ftp.software.ibm.com/ps/products/os2/ddpack` and installed them on my system. Everything seemed to install okay, but the printer driver wouldn't communicate with my printer. All the PCI-USB cards that I found state that Windows 98 is required to use the card.

When I posted a note on `discussion@possi.org`, I received a reply from Don Burch pointing me to an article on VOICE (`www.os2voice.org/VNL/past_issues/VNL1199H/vnewsf5.htm`). Here I learned that, to use the USB port with OS/2, you need to either have a motherboard using the Intel chipset with a USB port or, if you use a PCI-USB card, it must have the VIA chipset. With the VIA chipset, you need to a `usbuhcd.sys` driver modified by Robert Lalla. This can be obtained from Hobbes as `usb_uhci_fix01.zip`.

The next problem was to find a PCI-USB card that has the VIA VT83C572 chipset. The VOICE article lists several Internet sites that sell such cards. I ordered one from National Technology, but when it arrived I found that it has the CMD chipset which (according to the VOICE article) will not work with the IBM driver. I didn't try this card personally, since while waiting for it to arrive, I found an Inland Pro PCI to USB card at Fry's Electronics for $15, equipped with the VIA chipset. I installed this card along with the modified `usbuhcd.sys` file and *Voila!* I'm printing through the USB port.

If you want to try this, pay close attention to the chipset that is actually used on the card you purchase. Apparently, manufacturers change chipsets whenever they please. The Inland package has a picture of the card showing a Lucent chip but the card actually had the VIA chipset.

[*Note*: See page 20 for instructions on joining POSSI's discussion list, mentioned in this article.]

Phoenix OS/2 Society, Inc

The Phoenix OS/2 Society, Inc (POSSI) is an international organization of computer users with an interest in IBM's OS/2 operating system and related issues.

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Letters

Letters to the editor should be sent to editor@possi.org or mailed to the Phoenix OS/2 Society. We reserve the right to edit all letters for content, readability, and length.

I certainly hope to see a follow up on the editorial in the April 2000 issue of extended attributes, with an article along the lines of "The EA Guide to XML Books." I remember, that, a couple of years ago, IBM had a nicely organized Web site with information about Java books, but I have not been able to find a similar site about XML books.

Niels Jensen

[*Editor's Note*: We don't have an XML specific article planned, much less a book review. However, Esther Schindler wrote an article for her "day job," reviewing several XML books, which you can find at `www.zdnet.com/sr/stories/issue/0,4537,2551273,00.html`.]

A fax solution

I really enjoyed the article on Web-based fax services (extended attributes, January 2000), and thought that they could really solve one of my problems. Right now, I work out of three offices: my home office, a rented office in a suite about three miles from my SF Bay Area home, and an office in Oyster Bay, NY. If someone sends me a fax, it's guaranteed that I won't be there to get it, which means that they call me to find out if I received the fax, I say no because I'm not there, they resend to wherever I am... It's not a good solution.

After reading the article, I set up a free account with the eFax service, at `www.efax.com`. They assigned me a phone number in the Seattle area (code 425), but that wasn't a big deal; after all, most of the people sending me faxes were out-of-town anyway.

At first, I thought the eFax service was great. Within a few minutes of my sending out test faxes from my trusty HP OfficeJet, the fax images would show up in my email as attachments. Nerd-vana! So, I told some folks to use the eFax number for me, and changed my .sig email file to reflect that new number.

After constant use for several weeks, some patterns emerged that I didn't like. Faxes sometimes showed up immediately after sent, but more often than not they were delayed by hours. In one case, faxes were delayed for a couple o' days. And there are some faxes I've never received. That was clearly not acceptable for me to use as a primary fax solution! But what could I do?

To make a long story short, I decided to put a 56K modem card and fax software on one of my servers. The fax modem is actually one that came with my wife's new Compaq Presario 5340; I had taken it out immediately, because we have broadband access to the Internet via our LAN and a cable modem. The biggest challenge was finding where we're put the card.

I've configured the fax modem and software to do everything eFax did. But better. Whenever a fax comes in, the fax software has been configured to print a copy, email a copy of the fax to me, and also email a copy of the fax to my wife (heck, you never know who it's for). The hard copy is there so that if the PCs aren't on to receive mail, we still see the fax. There's now an account on my email server called "alanfax" which the fax server can use to make sure that we get the messages quickly.

Because I'm Mr. Paranoid, I still kept our old OfficeJet plugged into the fax line. The fax modem answers after one ring, and the OfficeJet answers after six rings. That way, normally the fax software would get the call, but if the server is rebooting or whatever, we still at least get the hard copy. I don't want to take any chances on not getting important business correspondence. Plus, of course, we use the OfficeJet for sending faxes as well.

We're pretty pleased with this solution. Of course, it's not a mass-market way of addressing the fax issue; we still have to pay for the fax line, for example. Fortunately, I had all the requisite hardware and software anyway.

But until eFax improves its service, this is the way for us.

Alan Zeichick

Smiling in color

I want to send you "kudos" for the cover for the May 2000 issue of extended attributes.

Sam MacDonald

I got my May extended attributes magazine. Wow! Color. I'm impressed.

Brad Montroy

Wow! That cover turned out great. I feel so good, I can't stop smiling! I feel inspired to... make more! Thanks for the opportunity to share my passion with other OS/2 Warp users.

cyberspittle

[*Editor's Note*: And thank *you*, "cyberspittle," for supplying the great cover art!]

A chat with John

by Esther Schindler

I've known IBM's John Soyring for almost as long as I've been using OS/2. As one of the IBM executives who participated in online discussions, such as CompuServe's (then-) OS2FORUM and ZiffNet's Executives Online, I admired Soyring's willingness to respond to end users, and I appreciated his no-B.S. answers. Over the years, we've spoken at conferences, we've talked on the phone, and we've sent each other the occasional stupid joke via email. I truly like the guy.

So, when I learned that John Soyring had been promoted to Vice President, e-business Operating Systems Solutions (e-boss), my delight was personal as well as professional. For the first time in years, I thought, we'll have someone responsible for OS/2 who really cares about it. Immediately, I asked for an interview with Soyring so I could ask him about OS/2 and its place in the computing landscape. In late April, via phone, I got my chance.

Attitudes

The father of a friend of mine is dying of a wasting disease. My friend's father is still able to function, but he requires constant attention and the prognosis is obvious. The family's emotions are tattered. My friend has spent time and money on experimental treatments, which seem to be helping. But the best hope is that this will extend his father's life, not bring the man back to robust good health.

After speaking with Soyring for an hour, I'm left with the feeling that this is how IBM sees OS/2. The company has no intention to put a bullet through OS/2's head. They're even doing their best to prolong its lifetime. But they aren't expecting it to get up and dance anytime soon. (Of course, few of the realists who make up today's OS/2 customer base should be surprised by this.)

The good news, first

Soyring's explanations were in the context of OS/2 customers' journey to "the world of e-business." IBM is encouraging OS/2 customers to move to the latest version of the client and the latest version of the server.

Before IBM announced the OS/2 Convenience Pack, also known as the new OS/2 client, on April 11, Soyring said, for a large company to bring an OS/2 system up to date requires each version to be tested and certified before rolling out the software. "That consumes labor, money, and time—before they could deploy the latest release." And those customers want to do so, says Soyring, because "customers find value in the application framework for e-business. They need to support a variety of clients—not only PCs, but also pervasive computing environments."

IBM needed to package everything together. So, they created the Convenience Pack, which will have a current, integrated and tested OS/2 client that incorporates the latest fixpacks. "It's essentially the same kernel" as OS/2 Warp Server for e-business, says Soyring, "but with some kernel functions left out, such as JFS and SMP [support]." No new business functions will be added, but the Convenience Pack will have new code in its installation programs.

IBM is also planning future enhancements to OS/2, such as USB support. The to-do list will come from "customer requirements from large enterprise customers."

Future directions

That all sounds good. So I asked Soyring if the refreshed client meant that IBM was ready to compete with Microsoft for the desktop? Or, as some OS/2 end-users have posited, was IBM waiting until Microsoft's court case with the U.S. Department of Justice was out of the way? (As you may remember, the Department of Justice deposed Soyring during that trial.)

Soyring's answer was firm and immediate. "No. We think we've lost that war. We're not trying to overtly convert new people to OS/2. ... It's not a battle we're willing to reengage in."

So what is the point, then? IBM is saying that it wants existing corporate customers to use the latest version of the operating system, and is continuing to add function to OS/2. Yet if it has no plans to market the operating system to new users, what is IBM's plan for OS/2's future?

"We want to help [customers] move to a platform independent model," says Soyring, "an e-business model. People need access to Internet based applications—and the device they use to access the Internet might not be a PC." For example, he pointed out, a Swedish bank will be providing banking services via a Nokia cellular telephone. This sort of activity will increase as bandwidth becomes increasingly available.

For OS/2 customers, that means that IBM will "provide enough functionality to convert their [OS/2] e-business to another server platform." IBM is putting the technology in OS/2 to "help them convert to making [their business] independent of the operating system."

Convert is very obviously the key word. Soyring spoke of Linux and Windows 2000—and he said there are no plans to create, say, a current WebSphere Commerce Suite (formerly Net.Commerce) for OS/2.

But what about developers?

What does this mean for those IBM Business Partners who have remained committed to OS/2? According to Soyring, IBM is working with independent software vendors (ISVs) "to work in this model" through the IBM Business Partner program. However, nobody at IBM has a specific responsibility for OS/2 ISVs.

Soyring said, "Don't write new applications to the OS/2 API set. I've been telling developers that for four years. Tools for that API set are not getting any investment."

Instead, Soyring's advice to OS/2 programmers is to change to "a platform independent model," which, presumably, means Java and possibly Linux. IBM is constantly updating the Java VM and the browser. That's the direction that, Soyring says, could knock Microsoft off its perch. "Technologies like Java could be a threat to the Windows programming interface," he says.

Lip sync

If you care about OS/2 as much as I do, you might find the comments above rather depressing. I certainly did. But there's one interesting facet to this conversation, which I didn't discuss with Soyring and haven't mentioned until now.

For the last several years, the OS/2 community had Guys In Charge who said one thing and then did another. The words and actions didn't sync-up. When Mike Lawrie, for instance, spoke at a Phoenix OS/2 Society general meeting, he claimed that IBM was still fully committed to OS/2, was thoroughly behind it, and so on. Meanwhile, IBM quietly cut the development budgets for OS/2, quit speaking to ISVs, and so forth.

Now, John Soyring is saying, very clearly that IBM will "provide enough functionality to convert their [OS/2] e-business to another server platform." In other press interviews (such as the one reported by Infoworld (`www.infoworld.com/articles/pi/xml/00/04/24/000424pios2.xml`) and another at c't (`www.heise.de/ct/00/10/058`), he said much the same thing. The OS/2 Strategy white paper (`www-4.ibm.com/software/os/warp/strategy`) reiterates the point that customers should move to another operating system.

Yet—OS/2 users have been asking for a new client version for several years. We've been asking for at least a client refresh for almost that long. No one at IBM has been able to make such a thing happen (despite herculean efforts on the part of some people I know). Three months after Soyring takes over, the Convenience Pack is announced.

Coincidence? You decide. But it does make me wonder if the words and actions are still out of sync—though in a different way than before.

Hell no, I won't go

I listened carefully to everything Soyring had to say. I thanked him for his time. Then I went back to work at my desk, using my OS/2 client, running native applications like MR/2 ICE, RelishNet, Mesa 2, DeScribe, and Golden CommPass. Not a single Java application among the batch.

Now you know how IBM is stating its OS/2 strategy. What's yours?

Warp recovery procedures

by David Both

This time, in my continuing series about troubleshooting OS/2 problems, I'll discuss how to recover from a crash or system lockup when key system files are damaged and the system will not boot normally.

General procedures

Often, when an OS/2 system crashes, one or more of the key operating system files have been damaged in some way. These files include CONFIG.SYS, OS2.INI, and OS2SYS.INI. There may also be damage to the \DESKTOP directory and its contents, its extended attributes, or its subdirectories. When these system files are damaged, the desktop may not load or OS/2 may not start at all.

Obviously, you have to get the system back up before you can attempt to determine the root cause of the problem, or make an effort at full recovery. All versions of OS/2, since OS/2 2.0, provide recovery aids to help you get the system running again.

Desktop and system archives

Both OS/2 Warp 3 and OS/2 Warp 4 have a number of recovery options available at boot time. OS/2 Warp 4 updated the Recovery Options Menu with a few options that were not available in OS/2 Warp 3.

Before you can attempt to recover from problems, you must have some method to restore the system to an operable state. OS/2 Warp provides this capability by enabling you to archive the current state of certain key OS/2 configuration files.

Use the Archive page of the Desktop Properties to enable automatic creation of archive files at each boot. When "Create archive at every system restart" is selected, OS/2 saves the critical configuration files it uses each time you reboot. Selecting "Create archive at every system restart" increases both the amount of time it takes to restart the system, and the amount of storage that the system uses at the archive location. When "Create archive at every system restart" is deselected, the system does not save its files each time you restart OS/2. The system keeps its original copies of the system files and any copies it saved before you deselected the option.

The Archive location field specifies the drive and directory in which the system is to store the copies of its files when it saves them. The default drive is the drive onto which you installed OS/2, and the default directory is \OS2\ARCHIVES. If you change this field's default, the archives at the old location are not lost. You can cause the system to use the archives at the old location by specifying the old location in the Archive location field. For this purpose, when you change the archive location, keep a record of the old location and the time you make the change.

If you don't want to keep the old archives around (for instance, you moved the location because you were running out of hard disk space), be sure to delete the \OS2\ARCHIVES directory and the subdirectories underneath it, as it can consume a lot of space.

OS/2 will save up to three sets of archived files, in addition to the original files. The system deletes the oldest set of archived files before archiving the current files.

"Configuration and Recovery Options"

Let's assume that you set up the Archiving options before your system crashed. Press Alt-F2 when the white rectangle appears in the upper left corner of your screen during boot. This causes OS/2 to display the "Configuration and Recovery Options" menu. This menu contains several choices, each of which provides a different level of recovery. These options are described below.

- **ESC** This option simply exits from the Configuration and Recovery Options menu, and continues the boot process as if it had not been interrupted.
- **F2** This option boots to an OS/2 command line session. From this session you can use TEDIT to edit CONFIG.SYS, STARTUP.CMD, or any other files that might need to be changed. No files are replaced and the original CONFIG.SYS is used. This is an important option, because you can usually boot to the command line session when the desktop or the CONFIG.SYS file is damaged. From the command line, you can often recover from problems which prevent the system from booting.
- **F3** This option resets your system's video mode to VGA. Doing so lets you recover from problems caused by incorrect video mode settings in CONFIG.SYS. It's also useful before installing a new video card or a Fixpak.
- **F4** The F4 Option reboots the system to the maintenance desktop. The Maintenance desktop provides the OS/2 GUI with a minimally functional desktop. It gives you access to a command prompt session and Selective Install functions. Many of the drivers and system programs which are normally active after a full boot are not loaded. Many files, which are otherwise locked, may be available for editing, deletion or replacement. This also allows you to perform a selective installation or selective removal of features which aren't possible if those features are active.
- **F5** The F5 selection enables hardware detection. This

allows OS/2 to identify the plug and play hardware installed in the computer.

- **F6** The F6 selection disables plug and play hardware detection.
- **1** Reboot using the archive files from the most recent successful boot.
- **2** Reboot using the archive files from the next most recent successful boot.
- **3** Reboot using the archive files from the third most recent successful boot.
- **X** Reboot using the Original Archive files created when OS/2 was installed. See the next section for instructions about how to create a new default "original" archive.

New "Original" Archive

After OS/2 Warp is installed, the installation process archives the desktop so that it can be recovered if it is damaged. In many cases, users never turn on the Archive feature, so if the desktop is damaged after he or she has customized the desktop, this customization must be performed again. Or, sometimes, the Archive feature is not enabled because it adds significantly to the time required to boot the computer.

The undocumented ARCINST command can be used to create a new X archive at any time. This command is used during the Warp installation process to create the default desktop archive after the original desktop is generated. Use the command syntax:

```
ARCINST
```

with no parameters to create the new default X archive. This new X archive can then be restored by using the Recovery Options Menu during the OS/2 boot process.

This command does not affect the other three archives.

Warning: If the desktop is behaving inappropriately or unpredictably, do not remake this or any other archive. Creating an archive while the desktop is damaged will copy the defective desktop and possibly destroy a good one, even though it may not be up to date.

Keeping viruses at bay

by Alan Zeichick

feature

It seems that I hear about viruses all the time on the news. Melissa, ILOVEYOU, and who knows what's coming next. Although those viruses specifically target Windows-based systems, and won't bother OS/2, Linux, or Macintosh clients, we shouldn't be too smug. Many of us use Windows, or rely upon services that are running on Windows-based servers. Perhaps we support customers or colleagues that run Windows, or access Windows applications running on Microsoft's Terminal Server or Citrix's WinFrame. That makes Windows viruses and other malicious programs our problem.

Staying safe

Believe it or not, it's possible to stay reasonably safe from viruses coming in from the Internet via email. Here's my three-step program:

First, use anti-virus software on every Windows-based system. At various times, I've used Computer Associates' Innoculate-IT, McAfee's VirusScan, Symantec's Norton Anti-Virus, and Trend Micro's PC-Cillin, and all will protect you from viruses. My personal favorite is Norton Anti-Virus 2000. The software is easy to run, and is unobtrusive. Its "Live Update" feature goes to the Internet automatically and refreshes the program's virus database as well as its executable code. But most importantly, Symantec's anti-virus team seems to be on the ball.

Second, keep the anti-virus software up to date. New viruses come out all the time, and yesterday's anti-virus software may not protect you from tomorrow's new strain. Most of these products include utilities to automatically or manually update themselves for free using the Internet. Run the update program every week. Run it daily when you hear news reports about a new virus.

Third, don't ever ever ever open up an email attachment that you weren't expecting, even from someone you know. Just downloading the file to your PC doesn't set off the virus—or at least, no virus writer has found a way of doing that yet. But opening it up can. If it's a program, like the attachment which came with the ILOVEYOU virus, it can do whatever it wants to your Windows PC—and if it launches Win-OS/2, I'm not sure what it would do.

If the virus is in a document, like many of the so-called "macro" viruses, it can take control of your word processor, spreadsheet, or even email software, and cause it to do bad things, like erase files and send copies of itself to your friends and colleagues. So think before you click.

How do they work?

Computer viruses and other malicious programs have two main characteristics. They find a way to run unwanted programs on your computer. They can also use your computer to send themselves to other computers. Some malicious programs—but not all—also attempt to damage your computer or data files.

Viruses are the best-known malicious programs. The most common ones today are the so-called "macro" viruses; a macro is a small program that can live inside a word-processing document or a spreadsheet. Most macros are useful tools which can help business productivity. But they can be subverted, and this is commonly done with Microsoft Word.

Many other vendors' word processing and spreadsheet programs contain macro languages too, but they're rarely targeted by hackers, because they have so little market share, and because they're not as powerful as Microsoft's macro language, called Visual Basic for Applications, which is common to all of Microsoft's current-generation business applications.

Word has a feature where, if a document contains a macro called "AutoExec," that macro is run automatically when that document is loaded. A Word Macro virus spreads when a document's AutoExec macro is actually a malicious program which does several things, none of which you want. For starters, it modifies Word's special "normal template," which is a file called normal.dot, which determines how all documents behave, to include the viral AutoExec macro. The macro also instructs Word to insert the macro virus into any other loaded document's AutoExec macro. So, once you open up a Word document that contains the virus, any other document you open and save will be infected. If you email an infected document to a friend, and if he opens it, he'll be infected too.

Macro viruses have been around for years. What's made things worse is that Microsoft's Outlook and Outlook Express email software have been designed to be controllable by Microsoft's Visual Basic for Applications. So, under the control of a malicious macro virus, Outlook and Outlook Express will cheerfully divulge the contents of the user's address book, and use that information to send out email messages automatically—with, of course, an attachment which contains the macro virus. That's how the Melissa virus worked.

The ILOVEYOU program isn't classified as a virus by computer-security experts, because it doesn't infect or hide inside other files. Instead, it's called a "Trojan horse," because it hides in plain sight, by pretending to be something that it's not.

continued on page 11

In the driver seat

New support for your OS/2 hardware

by David Wei, davidwei@cybermail.net

CDRecord/2 V1.8.1a05

CDRecord/2 is a free CD recording program for OS/2 that supports quite a few SCSI CD-R and CD-RW drives right out of the box. There are reports that CDRecord/2 can be used with ATAPI CD-R and CD-RW hardware when you have the right drivers installed. In the V1.8.1a05 release, the CDCOPY package and Cddawav were updated. See `www.geocities.com/SiliconValley/Se ctor/5785/cdrecord /cdrecordmain.htm`.

IBM printer drivers

IBM recently updated all their printer drivers, including LaserJet*, OMNI*, PLOTTERS* and PSCRIPT* —substitute your country code for the asterisks. There's also new support for the Epson Stylus Color 760, 860, 1160, the Hewlett Packard DeskJet 610C, and maintenance updates for Canon printer drivers.

Find them at `ftp://ftp.software.ibm.com/ps/products /os2/printpak`.

SoundBlaster Live! Driver

Sander van Leeuwen, the programmer for the GUS/GUS PnP driver, Aureal 8820 driver and WinOS/2-Odin, released his latest work, the SoundBlaster Live! driver for OS/2.

The new driver has many new features, including:

- mUp to 32 simultaneous wave playback streams
- mOne record stream
- mFull duplex
- mSupport for the IOCTL90 mixer interface

Download it from `www.xs4all.nl/~sandervl/sbliveos2.zip`. For source code under the GNU License, see `guest@www.netlabs.org:d:/netlabs.src/sbliveos2`.

SciTech Software SDD/2

There's another release of SciTech's SDD/2 video card driver for OS/2, now up to Beta 27. In this release, they've certified the S3 Vision, NeoMagic laptop, SiS and Alliance chipsets. They've added full acceleration and certified 3dfx Banshee and Voodoo3 chipsets on SDD/2, and added full acceleration for Rendition Verite V1000 and V2x00 (though the latter is still experimental).

SciTech Display Doctor Beta 26 can be downloaded from `ftp://ftp.scitechsoft.com/sdd/beta/os2 /sdd-os2-7.0.0-b26.exe`. The history can be checked out at `www.scitechsoft.com/sdd2_changes.txt`.

Virus — continued from page 10

The original ILOVEYOU program, called LOVE-LETTER-FOR-YOU.TXT.vbs, is actually a VBScript program; VBScript is a relative of Visual Basic. Many users didn't see the .vbs file extension, and thought the Trojan horse was a simple text message attached to a polite, if strangely worded, email ("kindly check the attached LOVELETTER coming from me"). I received more than 30 copies of the original ILOVEYOU, as well as copies of all the major variations.

If the victim was tricked by the email message's text into double-clicking the attachment, the malicious program ran (on Windows-based PCs only). Once started, it did all sorts of nasty things, including erasing data files. If the user's PC had Outlook or Outlook Express installed, the Trojan horse read Outlook's address book, and emailed copies of itself—the message text plus the attachment—to everyone in the address book.

It's important to note that although ILOVEYOU required Outlook's address book to propagate itself, serious damage was done to any Windows user who clicked on it, whether or not they had Outlook. Had the programmers wanted, they could have read any other email software's address book, but again, because Outlook is so popular, it was a natural target. It doesn't help, of course, that Outlook is as watertight as a screen door.

Microsoft is currently working on some patches for Outlook; as I write this, news about them is contradictory, but it appears that they're just making it slightly harder for users to unwittingly double-click on an attachment. Most pundits say that it's a case of too little, too late; I'm withholding judgement until I can see the patch, due at the end of May. But I can't imagine anything that they could do that would be 100% effective; what's really needed is anti-virus software.

ILOVEYOU was arguably one of the cleverest, and most destructive, malicious programs ever to appear. Who knows what those virus writers will come up with next.

.history

Coming events

A list of events scheduled by the Phoenix OS/2 Society and other OS/2 user groups.

June 2000

June

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

5 Magazine submission deadline for May issue. Articles should be sent to `editor@possi.org`. For other arrangements, call 480-585-5852.

6 net.sig (Internet SIG). Meeting is 6:00pm to 8:00pm. Coordinator Sam MacDonald. Location: KDC, 2999 N 44th St, 4th floor, Phoenix.

10 No general meeting. Instead, we'll have a FOOBAR (Friends Of OS/2 Barbeque And Revelry) at president Dick Krueger's home. It will also serve as a "thank you" party to the WarpTech volunteers. Send an email to `president@possi.org` for directions and instructions on a potluck item to bring.

13 Bay Area OS/2 Users Group meeting. Meeting is 1:00pm to 3:00pm. Contact Neil Waldhauer, `zonker@well.com`, for more details. Location: San Carlos Room, San Jose Hilton (at the eBusiness Conference and Expo), San Jose, California.

24 Board meeting and magazine prep.

July 2000

July

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11 No general meeting—taking the summer off.

29 Board meeting and magazine prep.

August 2000

August

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8 No general meeting—taking the summer off.

26 Board meeting and magazine prep.

September 2000

September

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5 Magazine submission deadline for May issue. Articles should be sent to `editor@possi.org`. For other arrangements, call 480-585-5852.

9 Warpstock in Philadelphia. See `www.warpstock.org` for more information.

12 General meeting.

30 Board meeting and magazine prep.

.sig news

net.sig

by Sam MacDonald

The Internet Special Interest Group met at the Knowledge Development Center on Monday May 1. We have now loaded OS/2 Warp 4 on our SIG machine with fixpack 12, including the updates to MPTS and TCP/IP. Unfortunately, contact with the proxy server still eludes us. One of these days we will make it out to the 'Net.

The next session, on the first Tuesday in June, will give us a break from the connectivity battle as Ernie Fisch will attempt to create a maintenance partition.

We hope to see you all there.

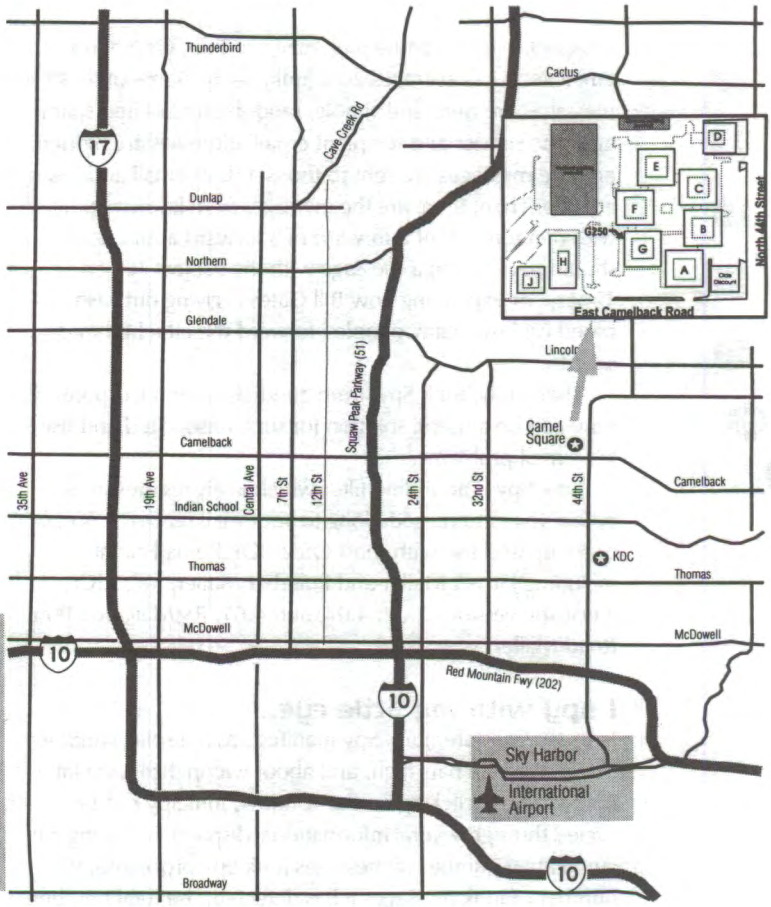
Meeting locations

Directions to meeting locations.

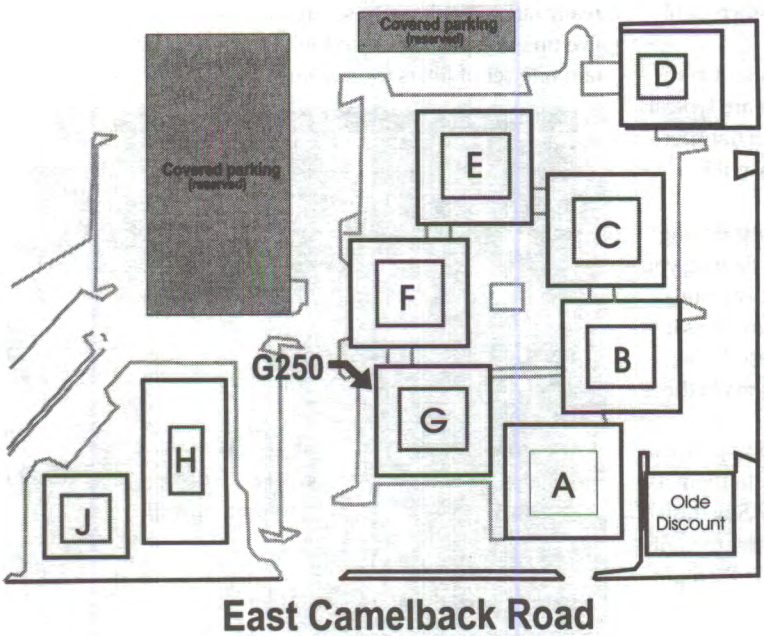
General meetings are held at the Camel Square office complex, Room G250, 44th Street and Camelback (northwest corner), Phoenix.

From the Red Mountain Freeway (202), exit at 44th Street and go north $3^1/_2$ miles. From the Squaw Peak (51), exit at Colter (southbound) or Highland (northbound); follow signs to Camelback Rd and go east $3^1/_2$ miles.

The "How OS/2 Works General Interest Group" and the Internet SIG (net.sig) meet at Knowledge Development Center, 2999 N 44th St, Suite 400. That's just north of Thomas, in the building with the green dome. Plenty of free parking is available in the garage behind the building.



If the mailing label on the back cover says "sample" then this may be the only copy of extended attributes that you will ever receive. If you want to keep getting the magazine (and receive all the other benefits of membership), you must join! A 12 month membership in the USA is only $30. (See the form for membership pricing in other areas.) Tear out the application, fill it in, and mail it with your membership fee today!



A map of Camel Square, the new location for the Society's monthly general meeting. We will be meeting in room G250. You may park anywhere except in the reserved (covered) parking spaces.

It's not junk

Sundial's Junk Spy keeps your email clean

by Craig Greenwood

I suspect that you battle junk mail like I do. One of my email accounts averages 20% junk, easily. Some of these messages are pure and simple, random, unsolicited spamage. The sender and recipient email addresses are hidden, and the messages are sent to thousands of email addresses at once. Then, there are the messages from known senders, with of a forward of a forward of a forward about how I should *never* open a message with the subject "Good Times," or explaining how Bill Gates is giving out cash based on how many people I forward the attached message to.

Thankfully, Junk Spy, from Sundial Systems Corporation, can be a useful solution for such unsolicited and useless email problems.

Junk Spy is an in-line filter which analyzes messages before they are passed along to your mail reader. It is easy to set up and use with most OS/2 POP3 email clients, including JStreet Mailer and Polarbar Mailer, MR/2 ICE, Netscape versions 2.02, 4.04, and 4.61, PMMail, and Post Road Mailer.

I spy with my little eye...

In its typical state, Junk Spy manifests as a display window that is two title bars high, and about two inches wide (at 800x600). By clicking on the window, JunkSpy can be cycled through several informational displays, including the cumulative number of messages Junk Spy processed, the number of junk messages it has detected, the total number of bytes processed, and the percentage of messages it filtered out.

How does Junk Spy identify undesirable mail? It compares each message to a database of clues that are typical of junk messages. This database is regularly and transparently updated via email by Sundial, yet you have the option of modifying it when you need to.

Junk Spy 1.0
$49.00

Sundial Systems
www.sundialsystems.com

If someone you began corresponding with in a newsgroup insists on flaming you in email, it is a simple matter to create a "clue definition" to filter out any messages coming from their email address. I only wish that you could use wildcards in these definitions.

Messages that are identified as junk can be flagged so that your email client can deal with them as you see fit. I send mine to a folder called "Junk Spy trash." Then, every so often, I wander through this folder to verify that the messages were all correctly flagged, and then perform a true delete on the contents.

If you something was flagged that shouldn't have been, you can look at that message's header and find a comment from Junk Spy stating what filter triggered the flag as junk. You can then modify that filter to let messages of this type pass through in the future. Additionally, you can forward the falsely accused message to `nojunk@sundialsystems.com` so that it will be added to the exception list of the database when it is next updated.

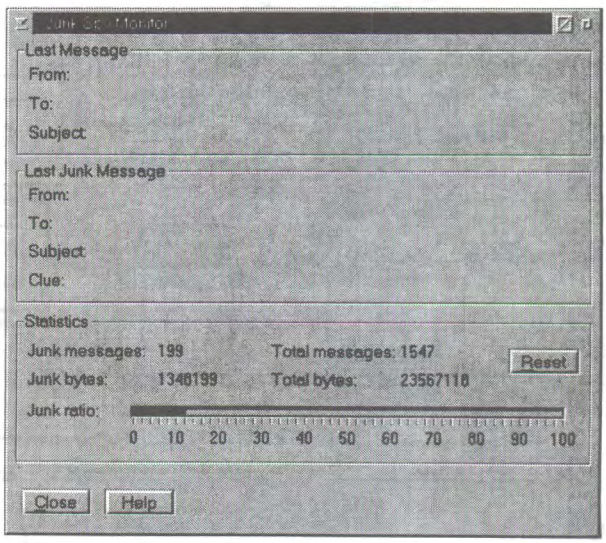
Conversely, if junk mail slips through and you think other Junk Spy users might want to have those clues to filter it out, forward the message to `junk@sundialsystems.com`. It may be included the next time the database is broadcast to registered users.

An additional junk detection option is to enable the Realtime Blackhole List (RBL) and the Relay Spam Stopper (RSS). Both are databases of mail servers known to facilitate or permit junk emailers. They are maintained by the non-profit Mail Abuse Prevention System (`http://maps.vix.com`).

More than a filter

Junk Spy may not be all that useful for everyone. Many email clients have their own powerful filter capabilities which can be used to do most of what Junk Spy does. It would take a lot of time, though, to set up so many filters. For example, if you use Netscape as your email client, then using Junk Spy would quickly surpass your filtering options and be a huge asset.

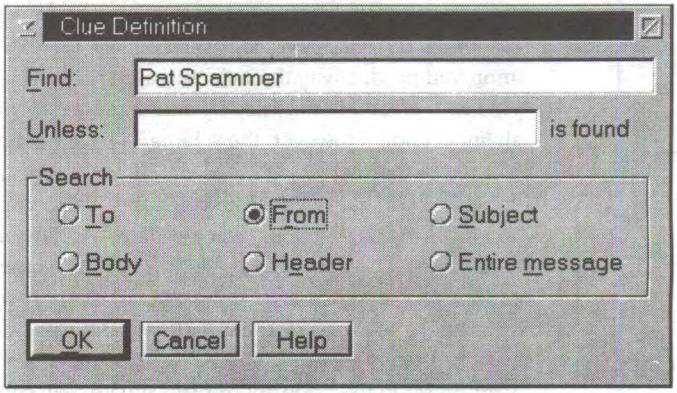
I use PMMail to access five different accounts. I would really rather not have to set up an extensive set of filters five times, especially since Junk Spy enables me to maintain one set of filters for any number of those accounts.



Junk Spy does what it is billed to do, without being obtrusive. It comes with excellent HTML documentation which includes specific instructions for setting up most major OS/2 mail clients. I found Sundial's customer support to be readily available, friendly, and efficient.

A downloadable trial version is available at `www.sundialsystems.com/junkspy/index.html`. The trial version limits the filter to only two messages per day.

Craig Greenwood is a computer hobbyist and charter member of POSSI who has been using OS/2 at home since Version 2.1.



Introduction to System Object Model

That SOMthing special behind the Workplace Shell

by Les Bell

The adoption of object-oriented (OO) programming techniques and languages has long held out the hope of improved productivity through increased code reuse, coupled with greater initial integrity and improved maintainability of code. However, these benefits have not been realized in the majority of cases, and many organizations there find obstacles to the introduction of OO technology.

First is the existence of legacy code written in conventional languages such as COBOL, PL/I, and C. Rather than being a problem, this code represents an asset: the code has already been paid for, it is working, and may adequately serve the existing needs of the business. No one wants to scrap this code and replace it with new code, just to get the benefits of object technology, but how can it be adapted or grafted into OO systems?

Another asset is the existing programming staff. Experience shows that attempting to retrain programmers familiar with existing procedural languages to use OO languages is often unsuccessful. In fact, IBM Consulting studies show that there is approximately a 10% chance of successfully retraining a COBOL programmer in C++, although the transition to Smalltalk is more successful.

Another problem is the selection of tools. There is a wide selection of OO languages—C++, Objective C, Object Pascal, Smalltalk, Eiffel, CLOS all come immediately to mind—so that the first decision is "what language do we use?" This leads to another problem.

The major benefit of OO technology is the ability to buy in subassemblies or *parts*, in the form of class libraries or frameworks. After all, nobody builds a computer from scratch; assemblers purchase cases, power supplies, disk controllers, and system boards from OEMs, who in turn source their processors and memory chips from semiconductor companies, who in turn purchase silicon wafers from specialist suppliers. At each stage, the manufacturer buys in subassemblies which provide a high level of functionality.

Yet, the software business has traditionally not worked this way. A corporation requires a new personnel system, and so a senior analyst/designer sits down with a legal pad and pencil to design the system and then programmers start coding—the whole thing being built from scratch.

OO offers the opportunity for application domain specialists to construct class libraries or frameworks which implement business classes and behavior. These frameworks can then be sold to customers who will write client programs to suit their business needs, and in some cases subclass the supplied classes to provide customized behavior.

But—and here's the rub—there are no (well, few) standards for interoperability between classes in the OO world. The procedural languages have had this sorted out for years—I can write a program in C which calls library functions written in Pascal, for example—but OO is just too new. If I write a banking framework in C++, my client banks will have to use C++ for their programs too. A bank which has committed to Smalltalk will have to look elsewhere for a framework (or pay me huge chunks of cash to rewrite my code in Smalltalk!).

Even within a single language, trouble still exists. There is no standard for parameter passing and virtual function tables in C++, for example, so that client programs and classes have to be compiled with the same compiler. Even different versions of a single compiler can produce incompatibilities unless care is taken.

SOM (System Object Model) is the answer to these problems. There is an emerging standard for interoperability between classes, or more properly between objects. The Object Management Group, an international body seeking to standardize OO technology, has produced a standard called CORBA (Common Object Request Broker Architecture) and SOM is the first implementation of this technology.

SOM is "a new object-oriented programming technology for building, packaging, and manipulating binary class libraries" (SOMObjects Developer Toolkit Users Guide, pp1-3). How does this solve the problems described above, and what are the benefits?

Benefits of SOM

SOM and CORBA split apart the interface of a class from its implementation. The interface defines what members of the class are visible to the outside world—public instance data and methods, for example—along with their calling conventions, number and types of parameters and other information required for a client to use an object of that class.

The interface specification is written in a special language called IDL (Interface Definition Language), which in the case of SOM is CORBA-compliant with extensions. The interface is then compiled by the SOM Compiler, which should more properly be titled the SOM Preprocessor, as it produces language bindings in the form of header or include files for the target language.

The programmer then writes the code which implements the object behavior using his choice of language—C, C++, PL/I, whatever. This is the solution to the first problem/opportunity mentioned above: existing code, written in procedural languages, can be turned into classes either by "wrapping" the existing code in a class, or by pulling apart the existing code and using it to implement the methods of the class.

In essence, SOM can be used to "front-end" a traditional procedural programming language and give it object-oriented features. Programmers can continue to use languages with which they are familiar and can gradually adopt object-oriented techniques.

Because SOM is also a standard for binary interoperability of objects, it solves the other problems mentioned above. SOM classes can be implemented in one language and used by another. In other words, it is possible to write a SOM class in, say, C, and have it subclassed in C++, and the resultant subclass used by a client program written in Smalltalk. Thus, developers can write class frameworks and sell them without having to worry about their choice of language.

This is also useful to corporate development teams. Technical and systems programmers can use SOM to implement low-level code such as client-server transport layers, while business-oriented applications programmers can use the resultant classes from higher-level languages like Smalltalk and visual programming environments such as IBM's Visual Age and Digitalk's PARTS (Parts Assembly and Reuse Toolkit).

However, for those who have a library of C++ code, their early adoption of OO techniques is repaid: the IBM Visual Age C++ compiler can generate SOM binaries directly from C++ classes and can even reverse-engineer IDL files from class source (.HH) files.

The language-neutrality of SOM comes about from four factors:

- SOM object methods are invoked by standard procedure calls, so that any language which can make external calls will work with SOM.
- The SOM API consists of bindings, which are header files or include files for a particular language, emitted by the SOM compiler. An emitter framework allows new languages to be added fairly easily.
- Different languages use different techniques for method resolution, that is, working out which method to invoke for a particular class. SOM supports three different mechanisms for method resolution, ranging from a static technique (which is similar to C++'s virtual function tables), to completely arbitrary techniques which can support interpreted languages (such as Smalltalk and Object Rexx).
- SOM complies with CORBA standards for data types, bindings and the CORBA-defined run-time "Interface Repository."

SOM provides significant benefits during development and also later in the system life cycle as maintenance is performed. For example, thanks to its binary compatibility, it is possible for the programmer to make quite significant changes to class implementation without requiring recompilation of client programs. Generally, if the changes made to a SOM class do not require source-code changes in the client programs, then those programs will not need to be recom-

piled. Changes which can be made to classes, yet may not require recompilation include:

- Adding new methods
- Changing the size of an object by adding or deleting instance variables
- Inserting new base classes above a class in the inheritance hierarchy
- Relocating methods upwards in the class hierarchy to a base class.

SOM makes it easy to encapsulate and deliver classes in the form of Dynamic Link Libraries (DLLs). With DLLs, client programs need not even be relinked, and applications can be designed to be extensible.

For an extreme example of this, consider the OS/2 Workplace Shell user interface. This allows new classes to be registered and objects of those classes created by dragging from templates, so that new functionality can be seamlessly added to the system. It is SOM that makes this possible.

A final benefit is that SOM is also platform-neutral. IBM implemented it on OS/2, AIX, Win16, Win32, Macintosh, various UNIX implementations, AS/400 and MVS.

SOM Class Frameworks

Compilers for languages like C++ are generally accompanied by class libraries which implement such generic functionality as I/O, complex number or vector classes and collection classes. The SOMObjects Developer Toolkit also provides a number of class frameworks.

DSOM

One drawback to conventional SOM is that, like C++, objects and their clients must exist in the same address space, as object references are passed around as pointers. For most host operating systems, this means that the objects and their clients must be in the same process, and this exposes the program system to bugs in classes. The larger the system, the more objects and classes running as part of the process, and the greater the chance that a bug in one will bring the whole process down. This could be clearly seen in the first release of the Workplace Shell in OS/2 2.0, where poorly-tested objects would regularly cause the interface to crash, although it would always restart itself and continue.

DSOM (Distributed SOM) solves this problem by allowing objects to exist in different address spaces. Objects are instantiated and run on a DSOM server process, and a client program is able to manipulate them by invoking methods on a stub called a 'proxy object' which appears in the client's address space. If either client or server crash, the other should be able to recover and continue, and a bug in one class should not affect other classes running on other servers.

Clearly, the genuine object and the proxy communicate using some form of client-server protocol. If this protocol could be transferred across a network, it would allow SOM to be used as a network client-server development tool. A subsystem called the Workgroup Enabler does exactly this: it allows objects and their client programs to communicate over NETBIOS, SPX/IPX and TCP/IP networks (and the existence of SOM for AS/400 and MVS suggests that SNA LU6.2 should also be supported).

Using SOM as a client-server protocol allows for interoperation of objects on a variety of platforms. User-interface classes running on an OS/2 workstation could interact with business classes running on an MVS mainframe. Of course, with all the debate about client-server application partitioning, SOM provides the answer: instantiate the objects wherever it makes sense.

The Interface Repository Framework: The Interface Repository is a primitive database which contains the interface information from the IDL for given classes, and provides this information at run-time for highly dynamic systems.

Replication Framework: Replicant SOM allows an object to exist in several address spaces, while actually maintaining a single image. Changes made in one address space propagates immediately to others.

Workplace Shell: In a sense, the OS/2 Workplace Shell is simply a SOM class framework. The PMSHELL.EXE program provides a process and context within which objects are manipulated, and each class is implemented using SOM and its class DLL registered into the system.

Definition of an object: "An independent piece of software that provides a specialized function and is designed to be assembled into specialized applications and/or compound documents" (SAA)

OpenDoc: OpenDoc is an architecture for the creation of compound, intelligent documents. It's a robust component technology for:

- Assembling specialized applications
- Creating and managing compound documents
- Automating and integrating user tasks

OpenDoc draws heavily on SOM for its underlying functionality, and this is reflected into its robustness and utility to application developers. By contrast, Microsoft's Object Linking and Embedding (OLE) architecture is overly-complex, difficult to use, fragile and limited in functionality—for example, it does not support inheritance, which is the linchpin of OO design. This is in part due to its genesis in Microsoft's applications division, where it was viewed originally as a facility to allow users to link together documents in Microsoft Office.

OLE has been referred to as "a morgue of dead objects"—a reference to the fact that in OLE, objects are cached but only one object can be brought to life at a time. This severely limits the utility of OLE in application development, and also limits the user interface capabilities.

New and improved

compiled by Esther Schindler

When IBM rolled out OS/2 Warp 4, they made a big deal about Java. Java applications, IBM executives claimed, would supersede native OS/2 applications and make the operating system "irrelevant." (Their emphasis on Java was so extreme that some industry pundits wrote that they were attending a Java launch that just happened to mention OS/2, rather than the other way around.)

It hasn't quite worked out that way, has it?

Instead, the new "available to anyone" applications are those from application service providers (ASPs). In many cases, you run the vendor's application over the Internet, and it's accessible to anyone with a Web browser. The program might use Java, but quite often, all you need is a copy of Netscape. You probably need a fast Internet connection, too, but with the growing popularity of DSL and cable modems, that's becoming less of an issue.

While most such applications are for specialized use, some are relevant for the mainstream computer user—even if that computer user happens to use OS/2.

This month, I'll start including announcements for Web-hosted applications that support (or may shortly support) any OS/2 user with a Web browser—and a fast Internet connection.

FreeDesk: apps via browser

VistaSource, Inc., announced that FreeDesk.com is the first application service provider to license VistaSource's Anyware Office to provide a free, full-featured application suite accessible from any Web browser. Anyware Office includes VistaSource's word processor, spreadsheet, email, graphics and presentation tools, all accessed through a small Java client.

Never heard of Anyware Office? It's claimed to be a the leading full-featured office suite available for the rapidly growing ASP market.

VistaSource, a wholly-owned subsidiary of Applix, Inc., is a leading provider of productivity applications for the Linux and ASP markets. Applixware Office v5.0 is the only office suite designed for and integrated with the Linux and UNIX environments. Anyware Office extends the power of these same applications to any standard Web browser using Java. Applix SHELF is the uniquely powerful Open Source programming environment behind both systems. Cosource.com is a leading marketplace for Open Source components such as SHELF. Smartbeak.com lets users get automated on-line support for all VistaSource products. The Company's products are available on a variety of operating systems, such as Linux, UNIX, and Microsoft Windows. More information can be found at `www.vistasource.com`.

FreeDesk is an Internet Application Service Provider (ASP) that provides Web-based office suite software applications and online collaboration capabilities on a free, ad-supported basis to businesses, consumers, ISPs and major portals.

I haven't reviewed the desktop apps, but I did try the word processor across my high-speed Internet connection. The biggest challenge is that, to print from one of these applications, you'll need a Sun Java plug-in—and that Netscape plug-in isn't yet available for OS/2. If IBM follows through on its promises to provide Java support for OS/2, perhaps the plug-in issue will be resolved, and this application suite will become a real possibility.

SecureDesktop

Juergen.Dankoweit@t-online.de released a new version of SecureDesktop, a security system for OS/2, which is in open beta test. It includes a serial multi-user desktop, and a logon/logoff/lock-module. See it at `http://home.t-online.de/~Juergen.Dankoweit`.

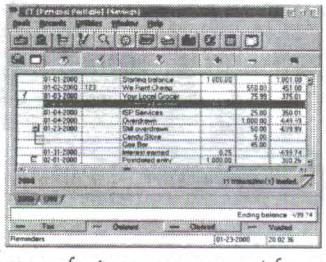
PMNapster

Ricardo Mayrink (`rmayrink@mailbr.com.br`) released PMNapster 1.2 Beta 1.

The file is on Hobbes, where it will eventually move to `http://hobbes.nmsu.edu/pub/os2/apps/internet/misc/napster_12_beta1.zip`.

Electronic Teller

Paul Caron (`phcaron@home.com`) released version 3.23 of Electronic Teller, a native OS/2 financial management suite for home users.



Among its many features are support for multiple bank, credit card, cash, asset, and liability accounts, grouped within portfolios. It has multiple-user support, persistant transaction links, financial reminders, configurable check printers, and a wide assortment of reports. For additional

information on Electronic Teller, visit http://members.home .net/phcaron.

LBMix

LBMix .04 is a universal mixer for the IOCTL90 Mixer API, implemented in Crystal Semiconductor drivers and SoundBlaster Live beta drivers. According to the author, it should work with any audio driver implementing this API. The mixer also supports the pipe mixer API, the easiest way to create your own mixer.

For more information and download, visit www.podolsk.ru/~boga/OS2Programs .html.

Boot Manager Fix

Windows 2000 brought troubles to many people who use the Boot Manager included with OS/2 Warp. If you installed Windows 2000 on a partition selectable by Boot Manager, you'll find that Windows 2000, upon boot, corrupts the Boot Manager partition.

This problem has been traced to the actions of a single installable file: FASTFAT.SYS, the Windows FAT file system driver. After Windows 2000 release candidate 2, FASTFAT.SYS will, upon loading, corrupt the OS/2 Boot Manager partitions. Fortunately, there is a fairly simple fix.

You can find the file with the fix instructions, BOFIXW2K.ZIP, on Norloff's OS/2 BBS (www.os2bbs.com) and presumably in the usual locations. I found it in section 22 of the CompuServe IBM forum (see separate article on how to get there.)

PMView

Blueprint Software Works, Inc., announced a partnership with Peter Nielsen to publish his latest release, PMView 2000 version 2.10. This upcoming version, scheduled for May 24, will be an update to his award winning image editing and conversion utility for OS/2 and Windows.

PMView 2.10 has two new file formats: WAP Bitmap (a new file format used in WAP mobile phones) and Softimage PIC. PMView supports more than 40 image formats, as well as automatic thumbnailing, built-in slideshow and screen capture utilities. More information on PMView 2000 as well as the current release are available at PMView's Web site, www.pmview.com.

SETI@Home Client

SETI@Home is a distributed computing project to analyze extraterrestial radio signals for evidence of advanced civilizations besides our own. The new 2.4 client of SETI@Home for OS/2 users is now available. Go to http://setiathome.ssl.berkeley .edu and follow the links to download.

SNES9x for OS/2 [MGL]

Marty (mamodeo@stny.rr.com) ported the popular, accurate, and fast Super Nintendo emulator, SNES9x.

This version has full screen graphics, using Scitech's MGL. It supports stretch blitting to occupy the full screen if the correct mode is not available, has 44KHz stereo sound using DART, and NVRAM saving for saved games.

You can download it from http://emuos2.vintagegaming.com.

RSJ-Writer update

The RSJ CD-Writer has recently been updated to version 3.05, with several bug fixes and minor enhancements. You can find details and pricing at www.rsj.de.

CDRWizard 0.99 beta 14

Rocco Foti (roccofoti@tiscalinet.it) released CDRWizard 0.99 beta 14, at www.quasarbbs.com/rocco and http://forosoftware.freeweb.org.

CDRWizard is a GUI Wizard interface to CDRECORD/2 for burning CD-R/CD-RW (data, audio, etc) discs.

OS/2 ISP mailing list

The popular OS/2 ISP mailing list has been moved to a new mailing list server at Hethmon.com. The list was the victim of crime when the servers were stolen from stat.com. As a result of that theft, the mailing list's subscription list was lost also.

In reviving the list, anyone who posted a message during 1999 or 2000 was sent a

message inviting them to re-join the mailing list. Since we all know there are many lurkers on mailing lists, this is an invitation to them to re-subscribe and join in.

The OS/2 ISP list is a mailing list devoted to ISP issues running OS/2. List topics include web servers, mail servers, TCP/IP configuration and really anything related to the network.

You may subscribe to the mailing list by sending an email message to
`os2-isp-request@hethmon.com`

In the body of the message put the commands:

```
sub
end
```

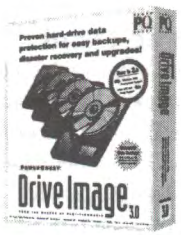
Drive Image 3.0

PowerQuest Corp.'s Drive Image 3.0 added support for Windows 2000 Professional, Linux Ext2 and Linux SWAP file systems, in addition to the currently supported operating systems (including OS/2). The new version also includes support for large hard drives and faster compression.

Drive Image 3.0 allows users to create image files of entire hard drives or individual partitions of their drives. Images can be stored on a removable drive, secondary hard drive or a different partition until needed for data restoration or migration to a new drive. The software is also used to perform full system backups for disaster recovery.

Among its features, Drive Image 3.0 boasts the ability to view individual files within an image and select which file(s) to restore. Additionally, the Drive Image File Editor allows the user to selectively copy or delete partitions from an image file to create a new customized image.

Drive Image 3.0 creates image files for FAT, FAT32, NTFS, Linux Ext2, Linux SWAP, and HPFS file systems and has the ability to hide, unhide, delete, or set active disk partitions. These features are used when working with systems containing multiple partitions and operating systems. They provide the power to configure systems without having to exit Drive Image 3.0 and run other utilities.



Users may also protect an image file created with Drive Image 3.0 from a crash or from additional users by writing it to any partition and then hiding that partition. ImageShield, a security feature which allows users to password protect important image files, is included in Drive Image 3.0.

Drive Image 3.0 is $69.95. Users may purchase the product through computer retail stores or via download from PowerQuest's Web site at `https://order.powerquest.com/webstore/index.html`.

Source Mapper

Source Mapper is a development tool that can be used to make a useful and human readable map of your C-style source codes. It lets you generate a map of a single source file, or of a huge project with an unlimited number of source files. The resulting map can be very useful for documenting the source code of your project, and it's helpful when digging into source code written by others.

A version of Source Mapper for Windows, OS/2, and DOS is available at `http://home.sol.no/~leilarse/index.html`.

Joining the discussion

The Phoenix OS/2 Society runs a private unmoderated email discussion list. In the 20 to 40 messages posted daily, OS/2 users discuss the best brands to buy, help one another debug a technical problem, and occasionally discuss the computing community of which OS/2 is a part.

To join the list, fill out the form at `www.possi.org/lists.html`.

While there's no requirement that participants be a member of the Society, it's generally expected that the people who use the service will support it financially.

Network Trace™ for OS/2® by Golden Code Development is software designed to reduce the cost of ownership of your OS/2 network. It enables any OS/2 machine on your network to capture all network traffic to a file for later analysis. Network Trace makes it easy to gather traces, whether on your local segment, or on the most remote segment of your WAN. You can now have the benefit of a hardware network probe on each of your network segments, but with a software-only implementation. You leverage the hardware you already have, and the software is deployed easily through standard software distribution.

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We're the largest international organization supporting OS/2 users, OS/2 software developers, and OS/2 friends. (Not even IBM can say that — they don't support OS/2 users!) When you become a member of the Society, you get:

- A subscription to our award-winning magazine, extended attributes
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- A chance to take part in various Society events
- The knowledge that you're not alone in a sea of Windows users

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